FIG. 1

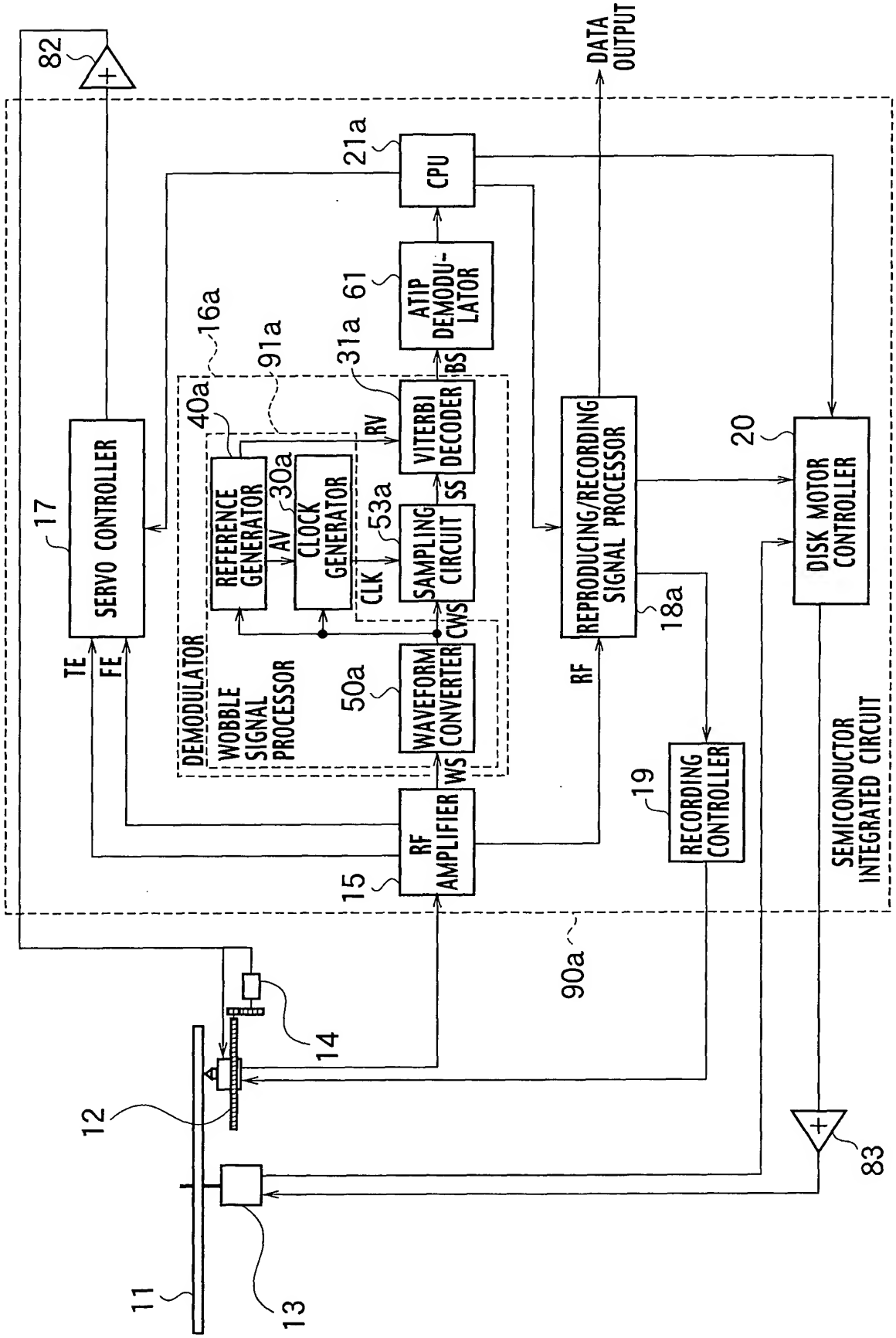

82
DATA OUTPUT
21a
CPU
ATIP DEMODU-LATOR
61
16a
91a
31a
40a
VITERBI DECODER
BS
RV
SERVO CONTROLLER
17
REFERENCE GENERATOR
AV
30a
CLOCK GENERATOR
SAMPLING CIRCUIT
53a
SS
CLK
CWS
REPRODUCING/RECORDING SIGNAL PROCESSOR
20
DISK MOTOR CONTROLLER
18a
DEMODULATOR
WOBBLE SIGNAL PROCESSOR
50a
WAVEFORM CONVERTER
WS
TE
FE
RF
RF AMPLIFIER
15
19
RECORDING CONTROLLER
SEMICONDUCTOR INTEGRATED CIRCUIT
90a
14
12
11
13
83

FIG. 2

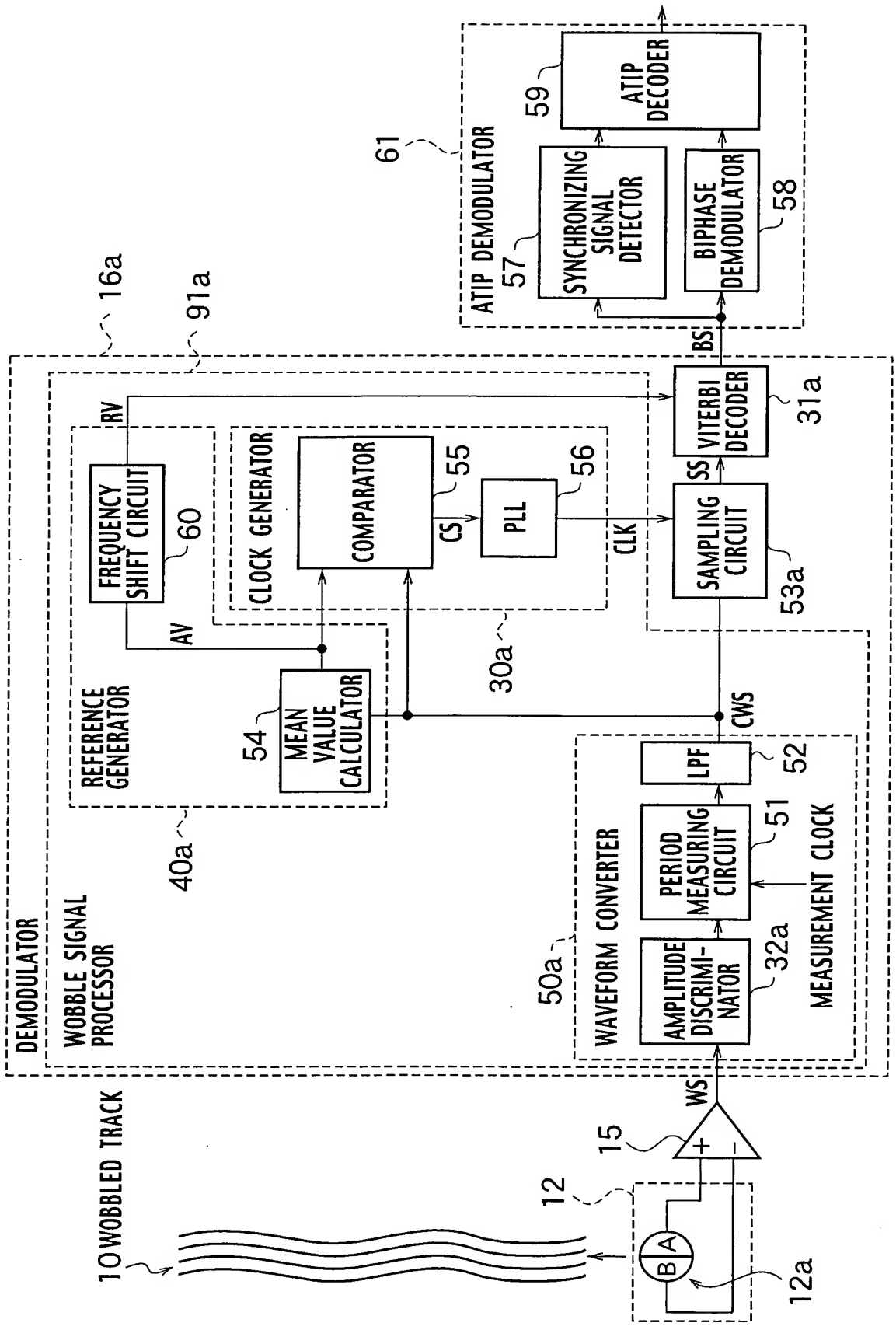

10 WOBBLED TRACK
12
12a
B
A
15
+
-
WS
DEMODULATOR
16a
WOBBLE SIGNAL PROCESSOR
91a
WAVEFORM CONVERTER
50a
AMPLITUDE DISCRIMINATOR
32a
PERIOD MEASURING CIRCUIT
51
LPF
52
MEASUREMENT CLOCK
CWS
REFERENCE GENERATOR
40a
MEAN VALUE CALCULATOR
54
AV
FREQUENCY SHIFT CIRCUIT
60
RV
CLOCK GENERATOR
30a
COMPARATOR
55
CS
PLL
56
CLK
SAMPLING CIRCUIT
53a
SS
VITERBI DECODER
31a
BS
ATIP DEMODULATOR
61
SYNCHRONIZING SIGNAL DETECTOR
57
BIPHASE DEMODULATOR
58
ATIP DECODER
59

FIG. 3

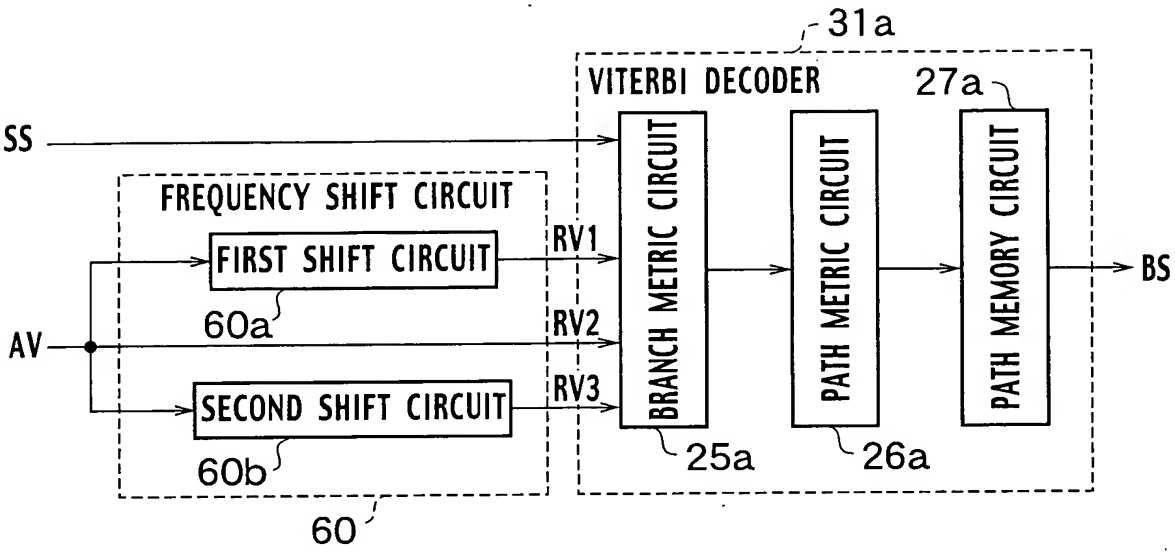

31a
VITERBI DECODER
27a
SS
FREQUENCY SHIFT CIRCUIT
FIRST SHIFT CIRCUIT
RV1
60a
AV
RV2
SECOND SHIFT CIRCUIT
RV3
60b
60
BRANCH METRIC CIRCUIT
25a
PATH METRIC CIRCUIT
26a
PATH MEMORY CIRCUIT
BS

FIG. 4

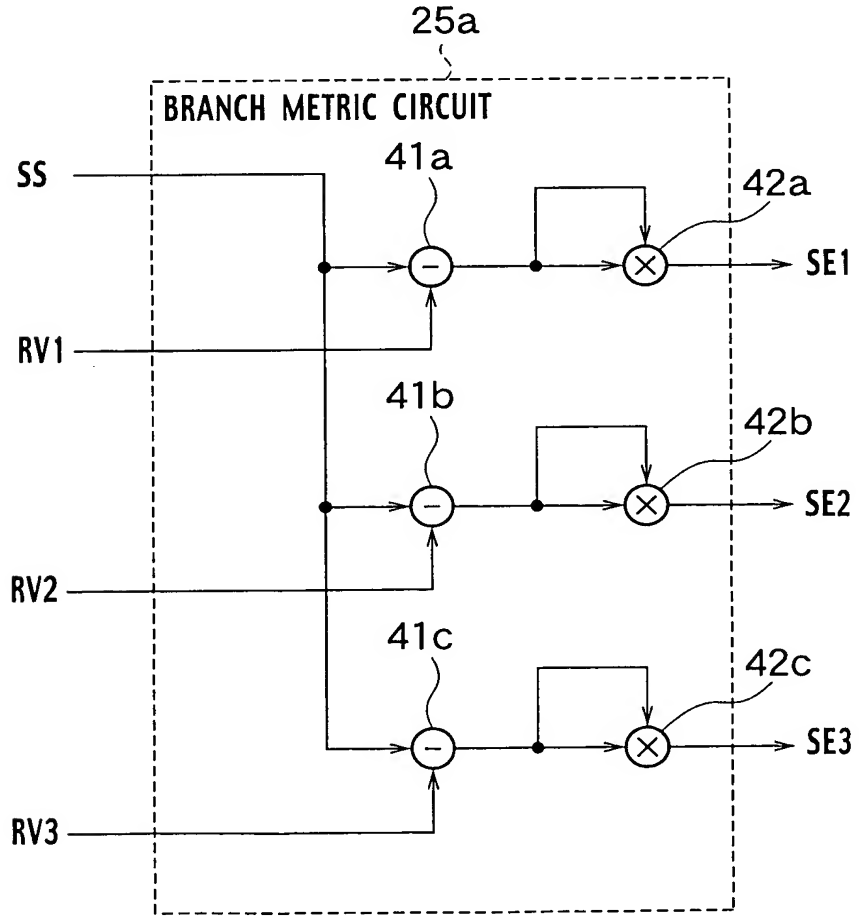

25a
BRANCH METRIC CIRCUIT
SS
41a
42a
SE1
RV1
41b
42b
SE2
RV2
41c
42c
SE3
RV3

FIG. 5A

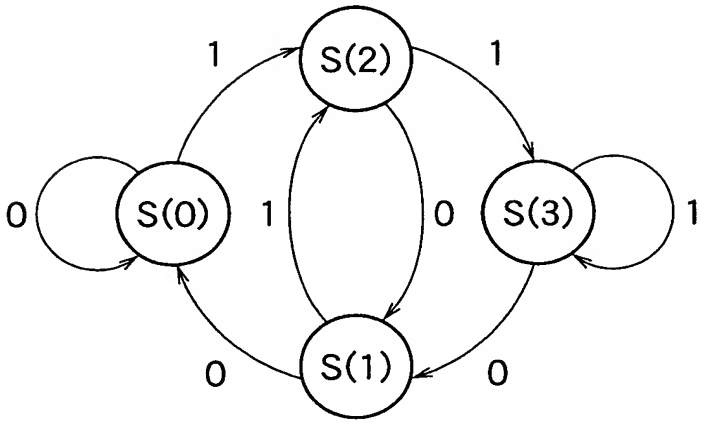
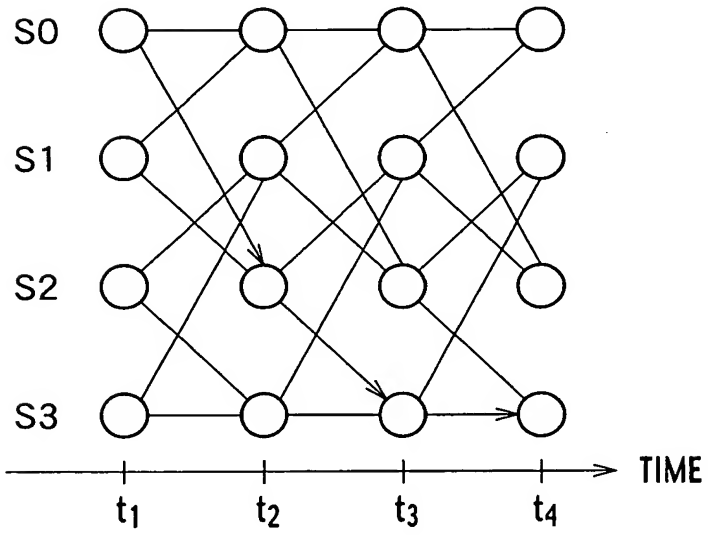


FIG. 5B



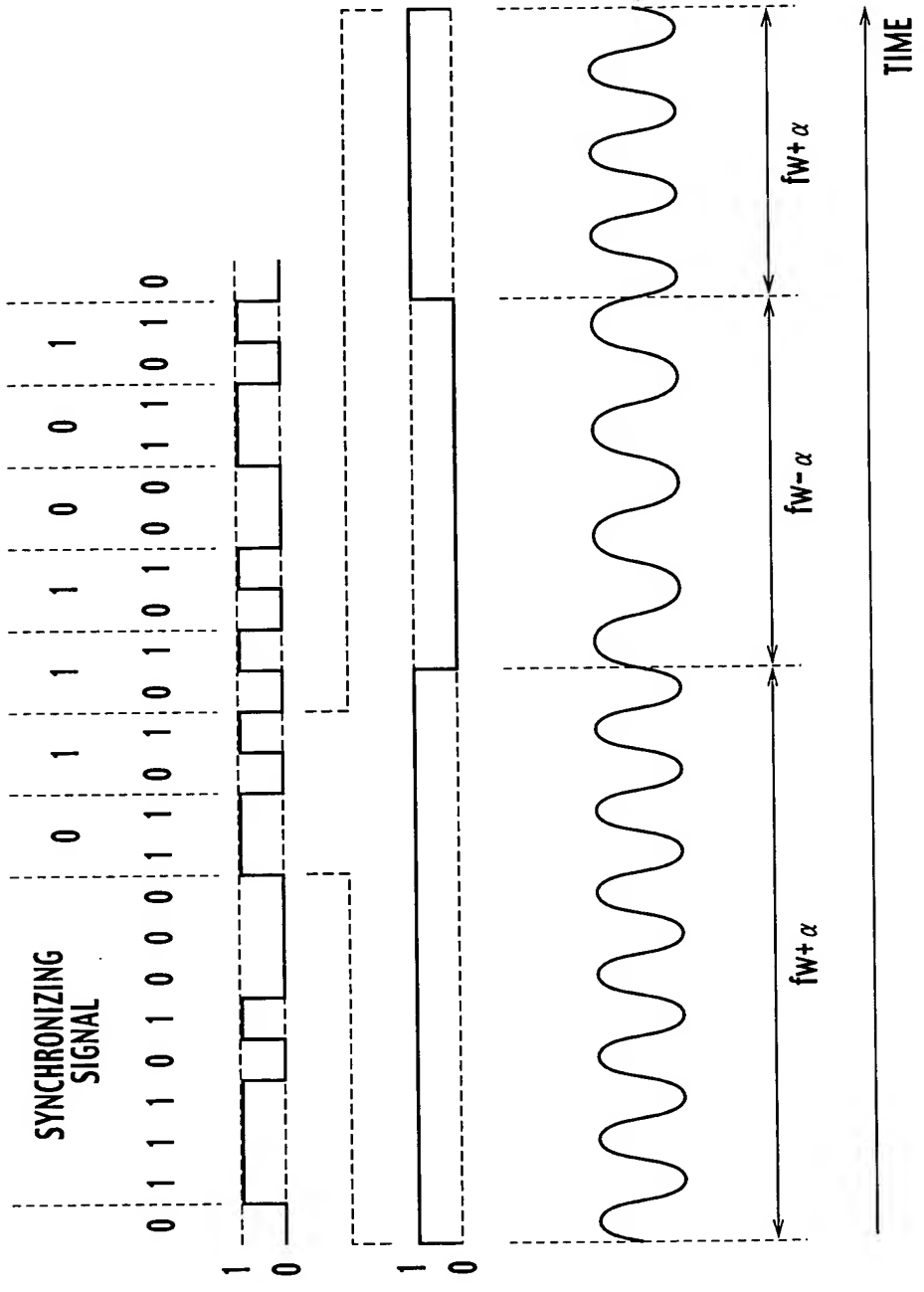


FIG. 6A ATS

FIG. 6B BS

FIG. 6C BS

FIG. 6D BS

FIG. 6E FS

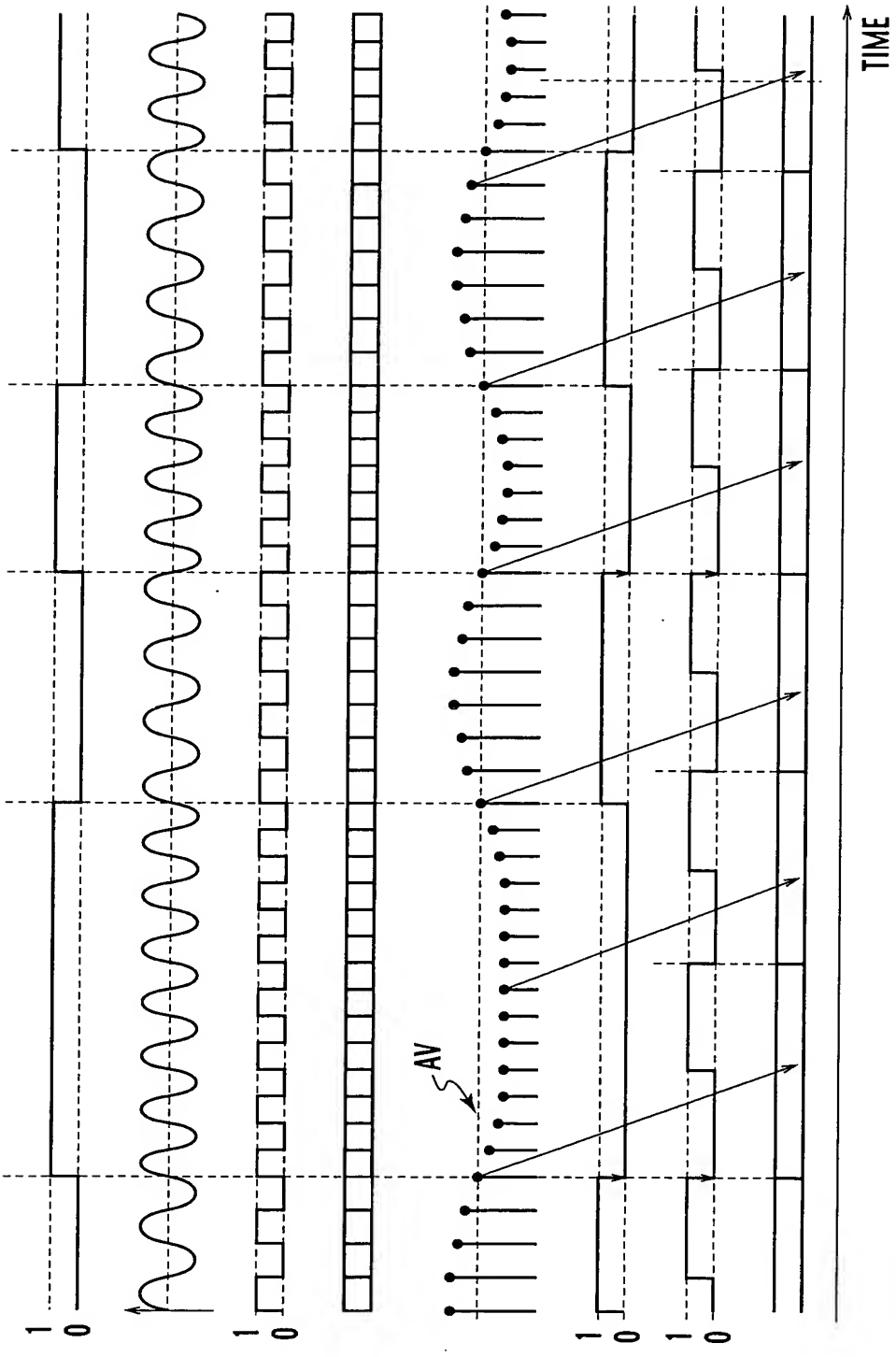


FIG. 7A BS
FIG. 7B WS
FIG. 7C
FIG. 7D
FIG. 7E CWS
FIG. 7F CS
FIG. 7G CLK
FIG. 7H SS

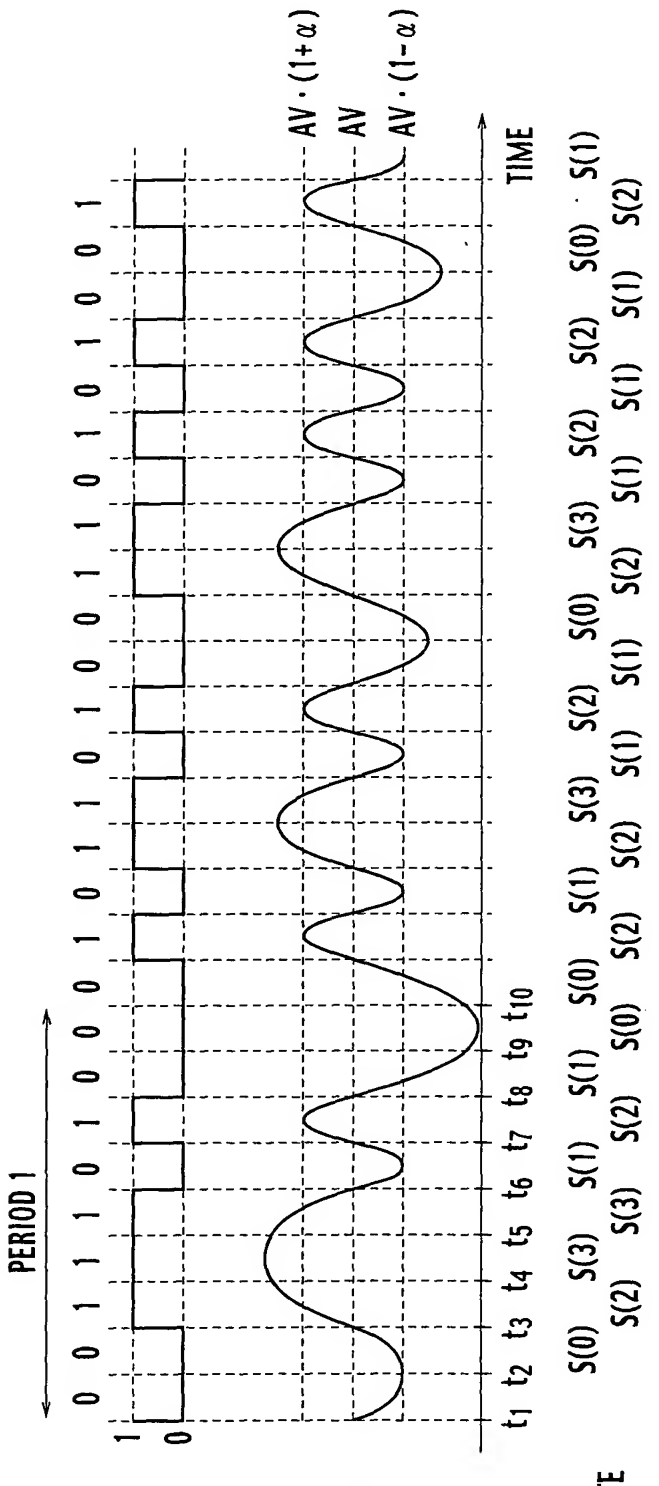


FIG. 8A BS

FIG. 8B CWS

FIG. 8C STATE

FIG. 9A

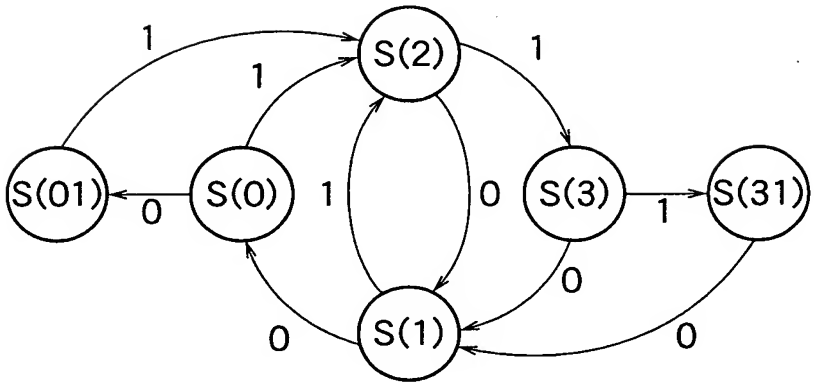
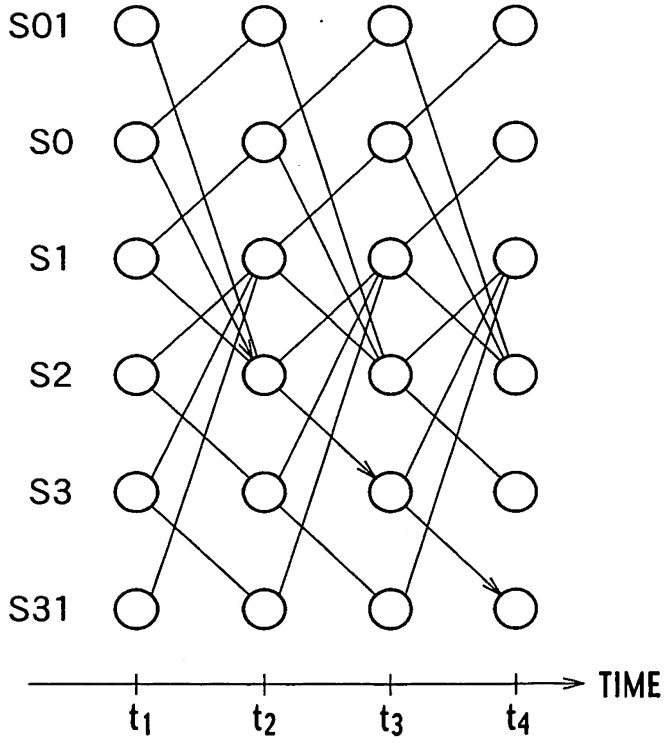

S(2)
S(01)
S(0)
S(3)
S(31)
S(1)
1
1
1
0
1
0
1
0
0
0

FIG. 9B


S01
S0
S1
S2
S3
S31
TIME
t1
t2
t3
t4

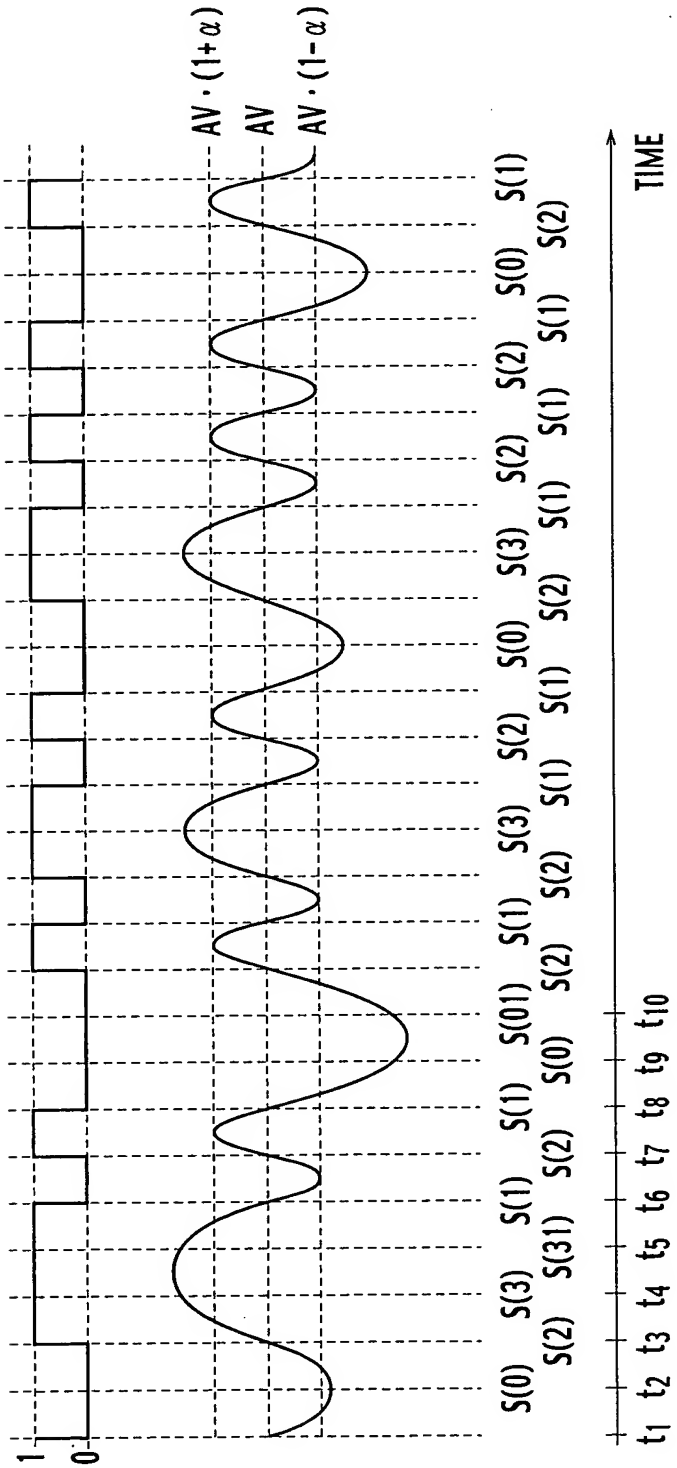


FIG. 10A

FIG. 10B

FIG. 10C

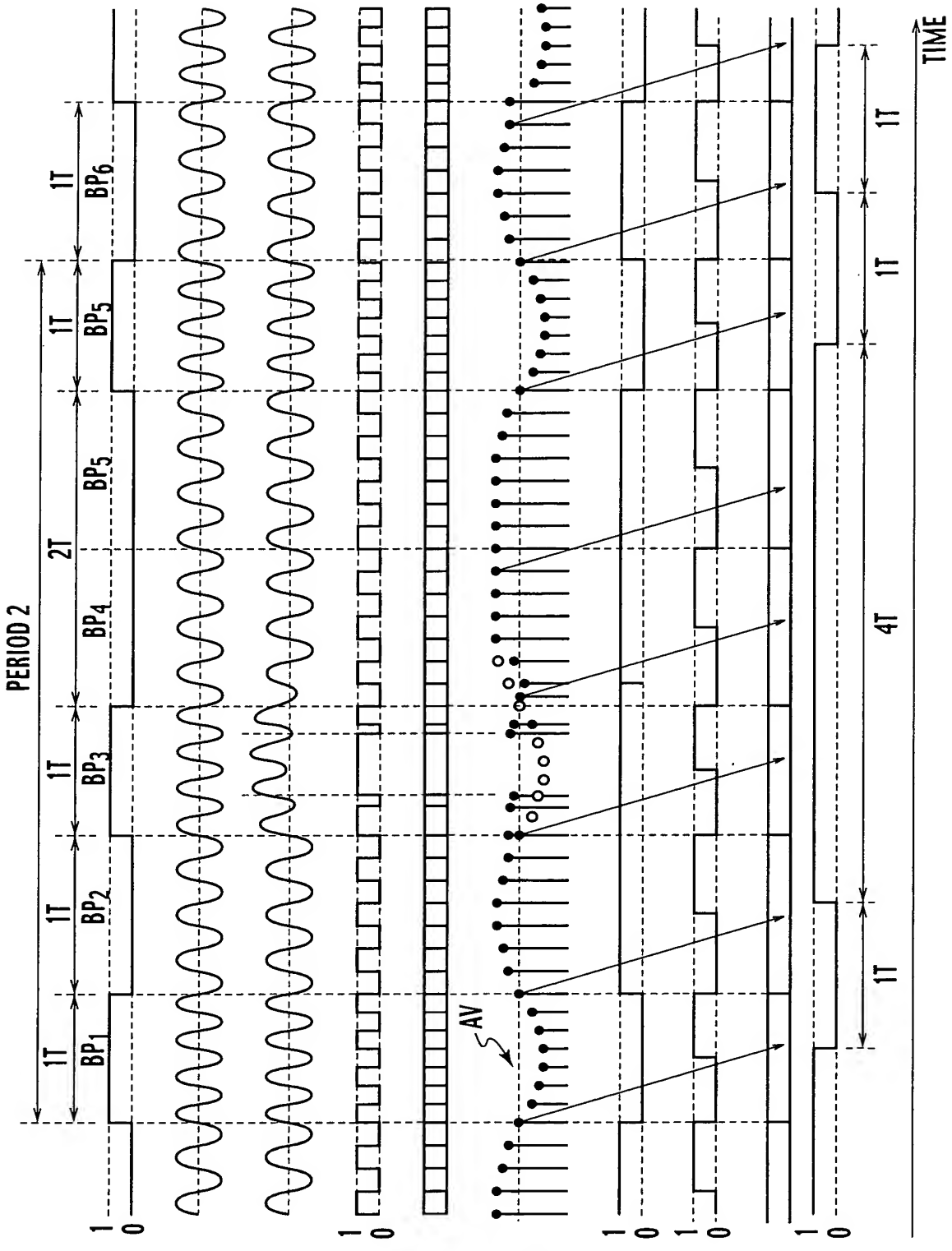


FIG. 11A BS
FIG. 11B WS
FIG. 11C WS
FIG. 11D
FIG. 11E
FIG. 11F CWS
FIG. 11G CS
FIG. 11H CLK
FIG. 11I SS
FIG. 11J BS

FIG. 12

(a) PATTERN	(b) BIPHASE CODE SEQUENCE						(c) SAMPLED SIGNAL VALUE					(d) ROOT-MEAN SQUARE ERROR
	BP1	BP2	BP3	BP4	BP5	BP6	L1	L2	L3	L4	L5	
1	1	0	1	0	0	1	0	0	0	1	0	0.25
2	1	0	1	0	1	1	0	0	0	0	1	2.25
3	1	0	1	1	0	1	0	0	-1	0	0	2.25
4	1	0	1	1	1	1	0	0	-1	-1	-1	6.25
5	1	0	0	0	1	1	0	1	1	0	-1	3.25
6	1	0	0	1	0	1	0	1	0	0	0	1.25
7	1	0	0	1	1	1	0	1	0	-1	-1	5.25

FIG. 13

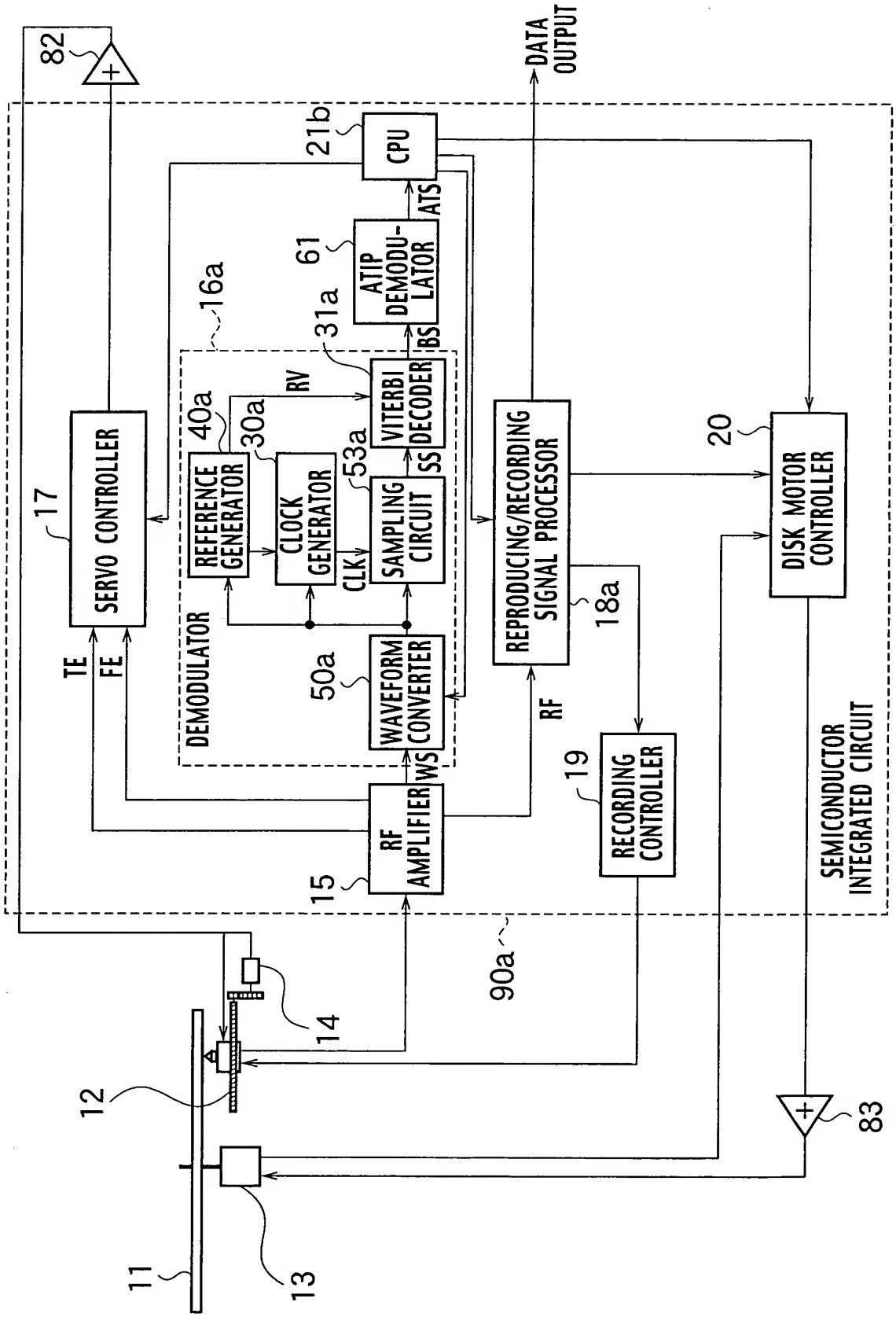

82
DATA OUTPUT
21b
CPU
ATS
61
ATIP DEMODU-LATOR
16a
31a
IBS
RV
VITERBI DECODER
40a
30a
53a
SS
REFERENCE GENERATOR
CLOCK GENERATOR
SAMPLING CIRCUIT
CLK
17
SERVO CONTROLLER
DEMODULATOR
REPRODUCING/RECORDING SIGNAL PROCESSOR
20
DISK MOTOR CONTROLLER
18a
TE
FE
50a
WAVEFORM CONVERTER
WS
RF
19
RECORDING CONTROLLER
RF AMPLIFIER
15
SEMICONDUCTOR INTEGRATED CIRCUIT
90a
14
12
83
11
13

FIG. 14

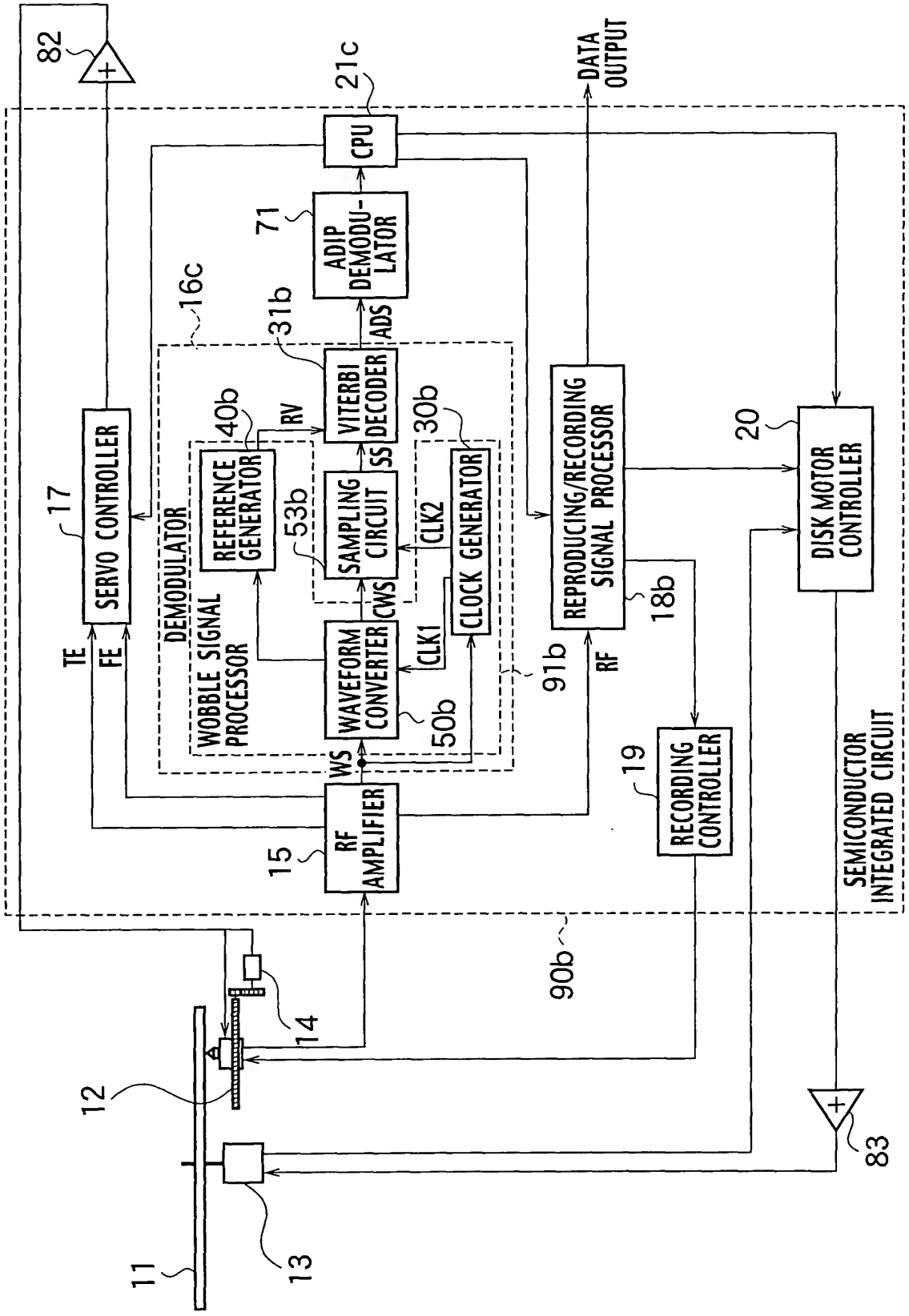

82
21c
DATA OUTPUT
CPU
71
ADIP DEMODU-LATOR
16c
31b
ADS
VITERBI DECODER
40b
RV
30b
SS
REFERENCE GENERATOR
SAMPLING CIRCUIT
CLK2
CLOCK GENERATOR
53b
CWS
CLK1
WAVEFORM CONVERTER
50b
WS
DEMODULATOR
WOBBLE SIGNAL PROCESSOR
17
SERVO CONTROLLER
TE
FE
RF AMPLIFIER
15
91b
RF
REPRODUCING/RECORDING SIGNAL PROCESSOR
18b
20
DISK MOTOR CONTROLLER
19
RECORDING CONTROLLER
SEMICONDUCTOR INTEGRATED CIRCUIT
90b
14
12
11
13
83

FIG. 15

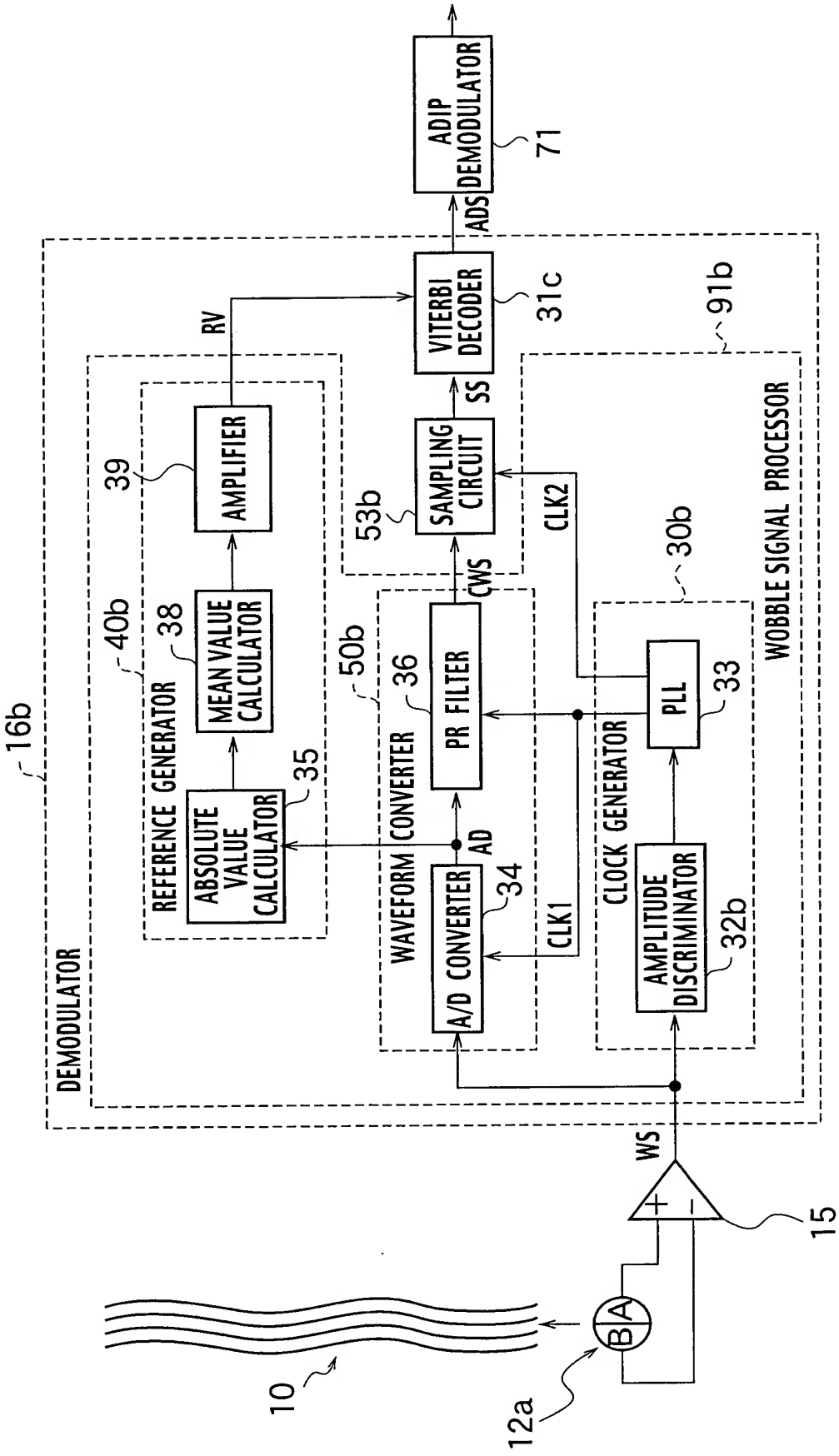

ADIP DEMODULATOR
71
ADS
VITERBI DECODER
31c
91b
RV
SS
AMPLIFIER
SAMPLING CIRCUIT
39
53b
CLK2
30b
WOBBLE SIGNAL PROCESSOR
16b
DEMODULATOR
40b
38
MEAN VALUE CALCULATOR
50b
36
PR FILTER
CWS
PLL
33
REFERENCE GENERATOR
35
ABSOLUTE VALUE CALCULATOR
WAVEFORM CONVERTER
AD
CLOCK GENERATOR
34
A/D CONVERTER
CLK1
AMPLITUDE DISCRIMINATOR
32b
WS
15
10
12a
B
A

FIG. 16

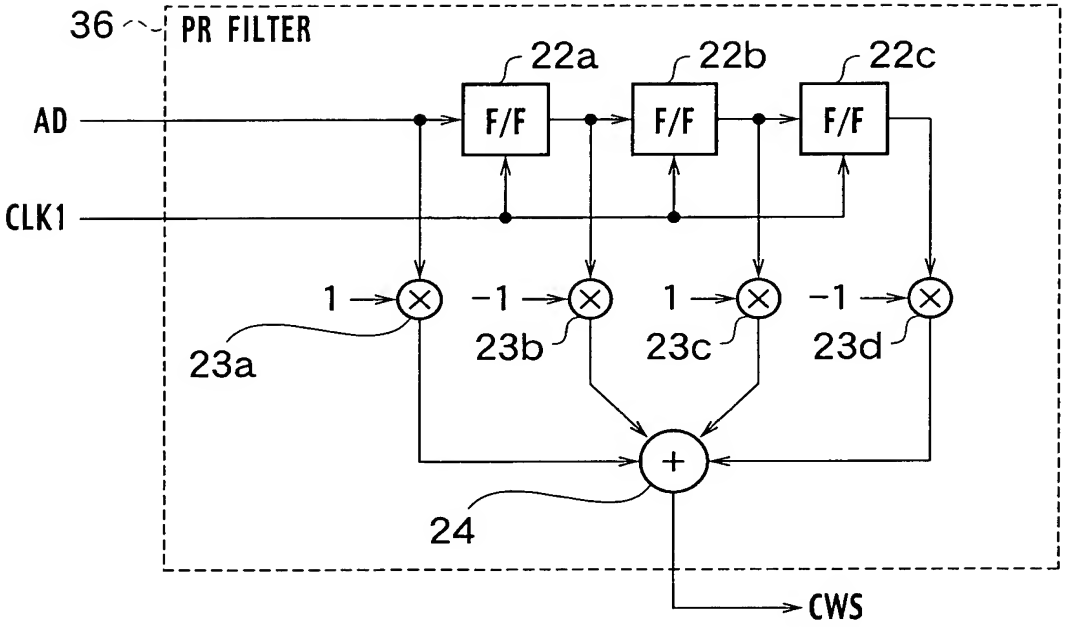

36
PR FILTER
22a
22b
22c
AD
F/F
F/F
F/F
CLK1
1
-1
1
-1
23a
23b
23c
23d
+
24
CWS

FIG. 17

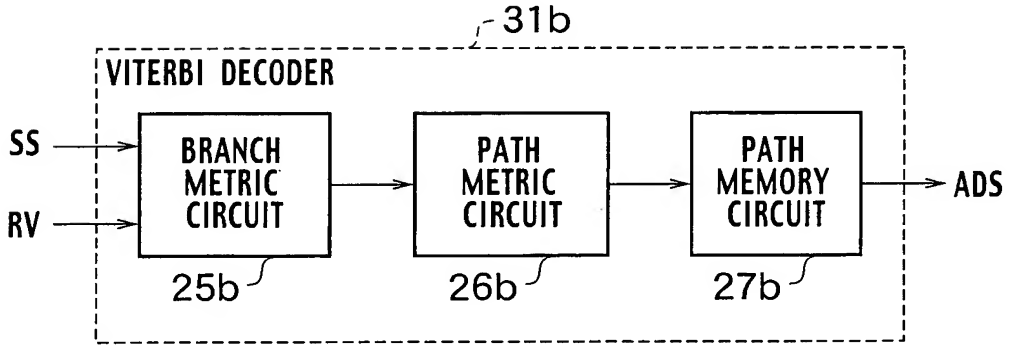

31b
VITERBI DECODER
SS
RV
BRANCH METRIC CIRCUIT
PATH METRIC CIRCUIT
PATH MEMORY CIRCUIT
ADS
25b
26b
27b

FIG. 18

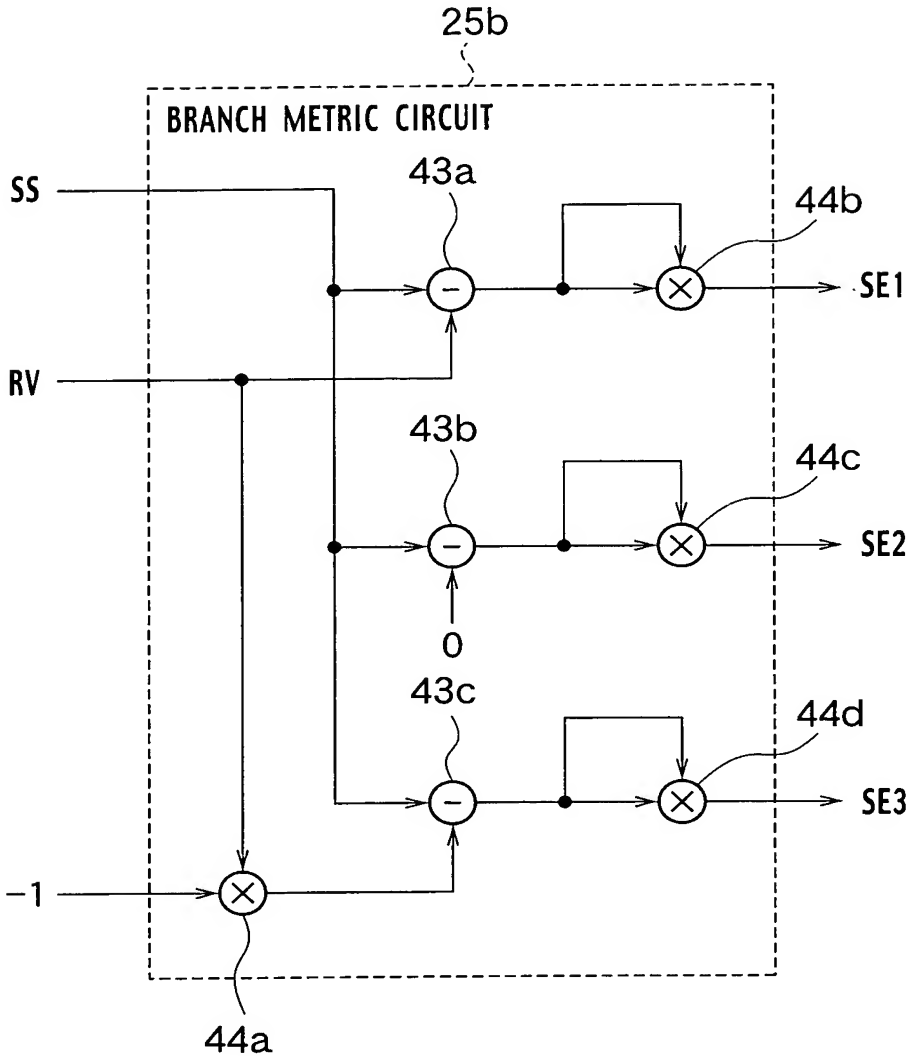

25b
BRANCH METRIC CIRCUIT
SS
RV
43a
44b
SE1
43b
44c
SE2
0
43c
44d
SE3
−1
44a

FIG. 19A

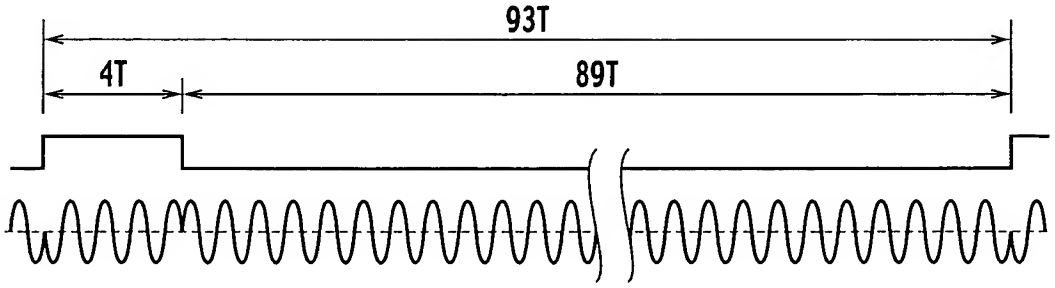


FIG. 19B

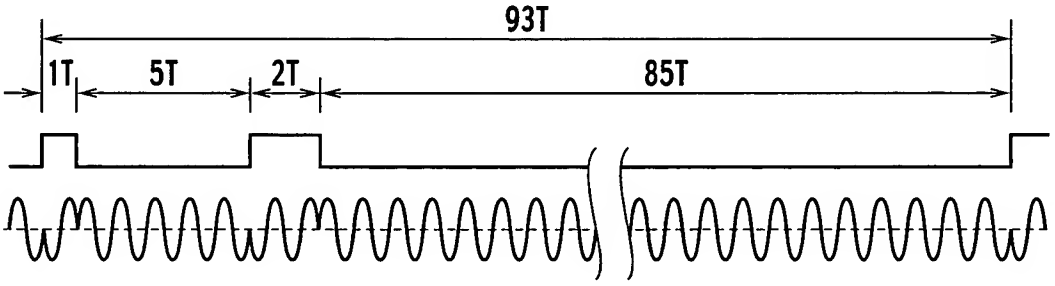
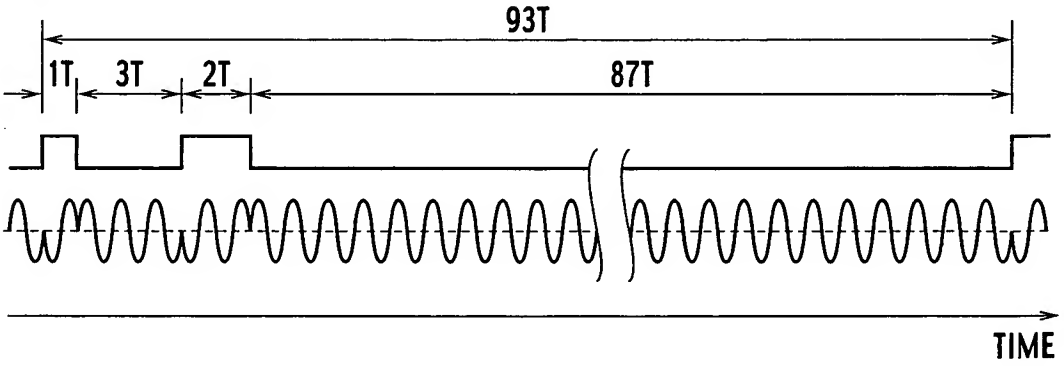


FIG. 19C



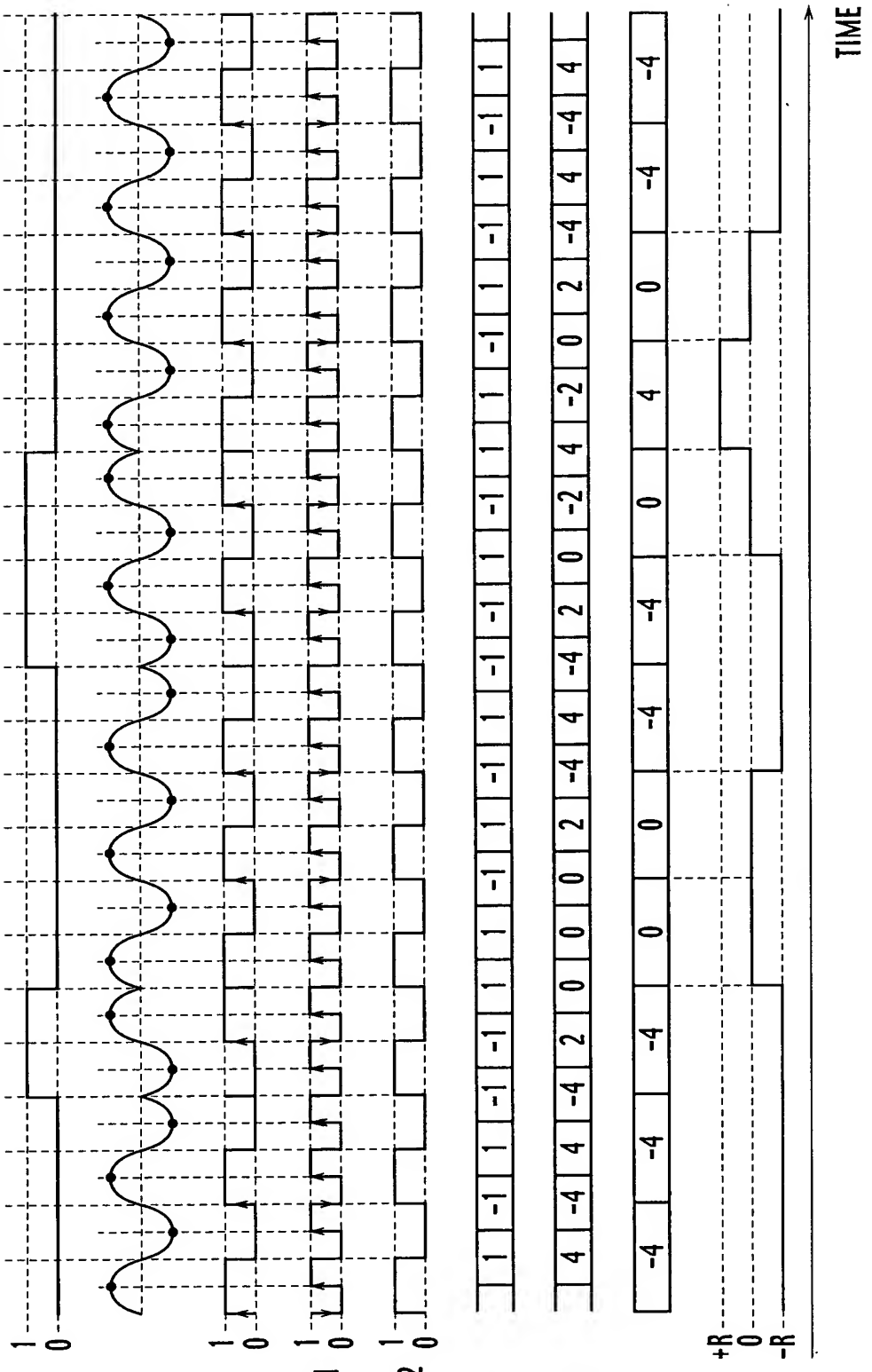


FIG. 20A ADS

FIG. 20B WS

FIG. 20C

FIG. 20D CLK1

FIG. 20E CLK2

FIG. 20F AD

FIG. 20G CWS

FIG. 20H SS

FIG. 20I SS

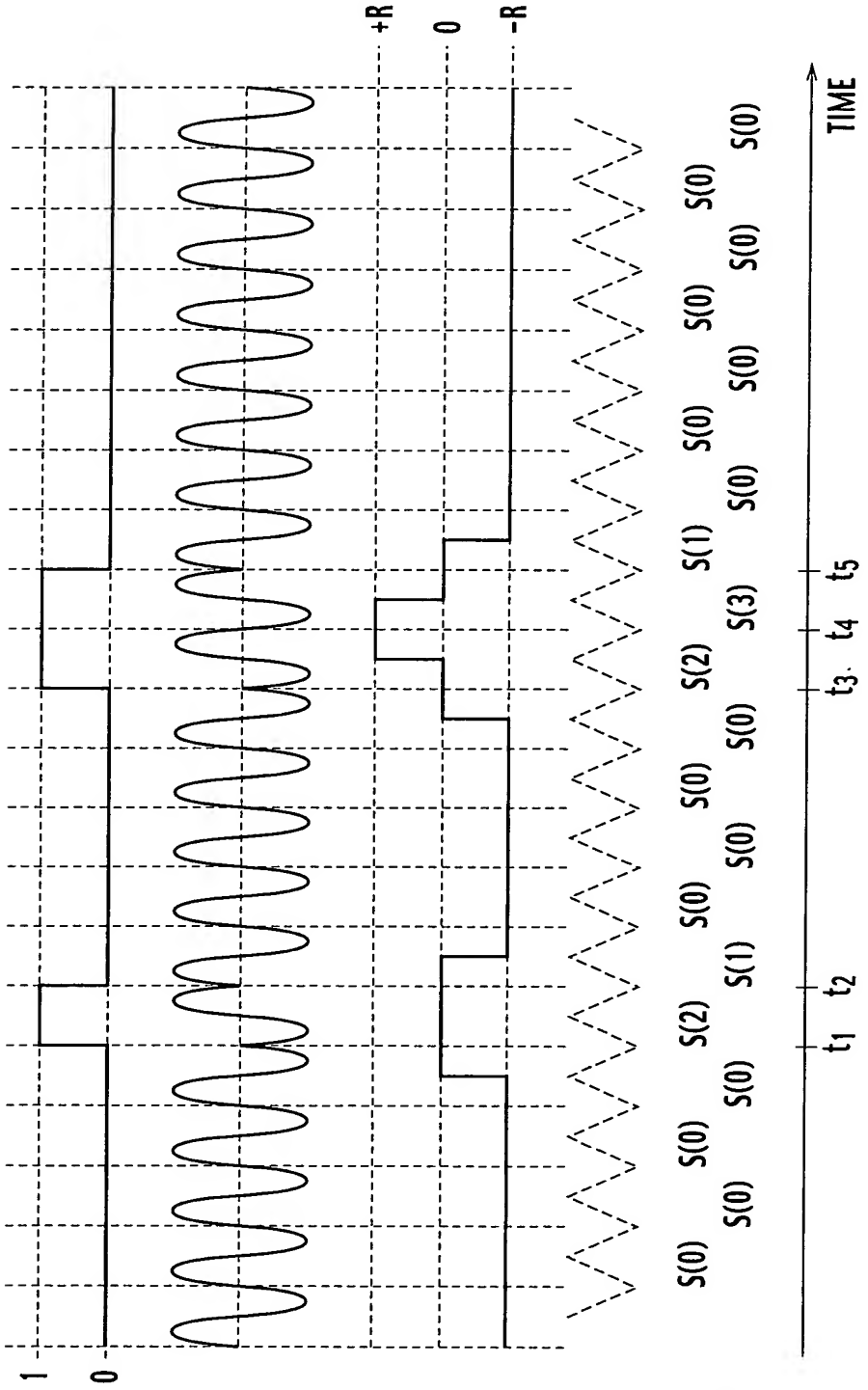


FIG. 21A ADS

FIG. 21B

FIG. 21C CWS

FIG. 21D STATE

FIG. 22A

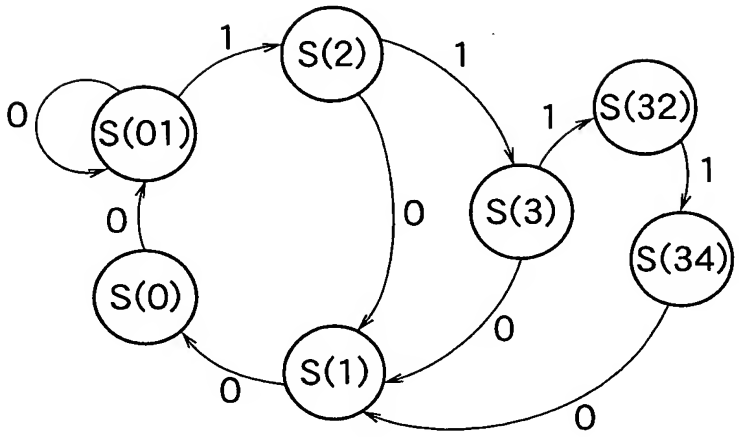
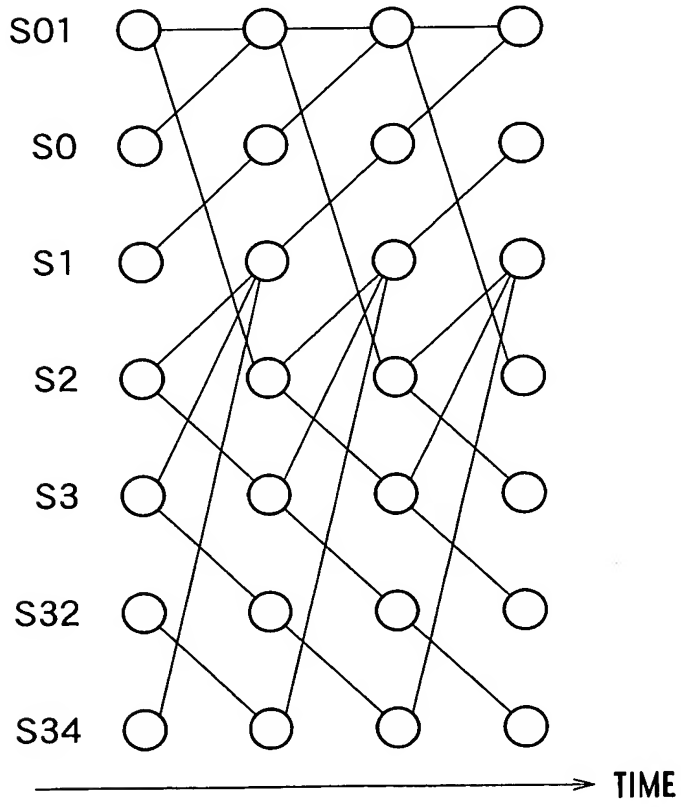


FIG. 22B



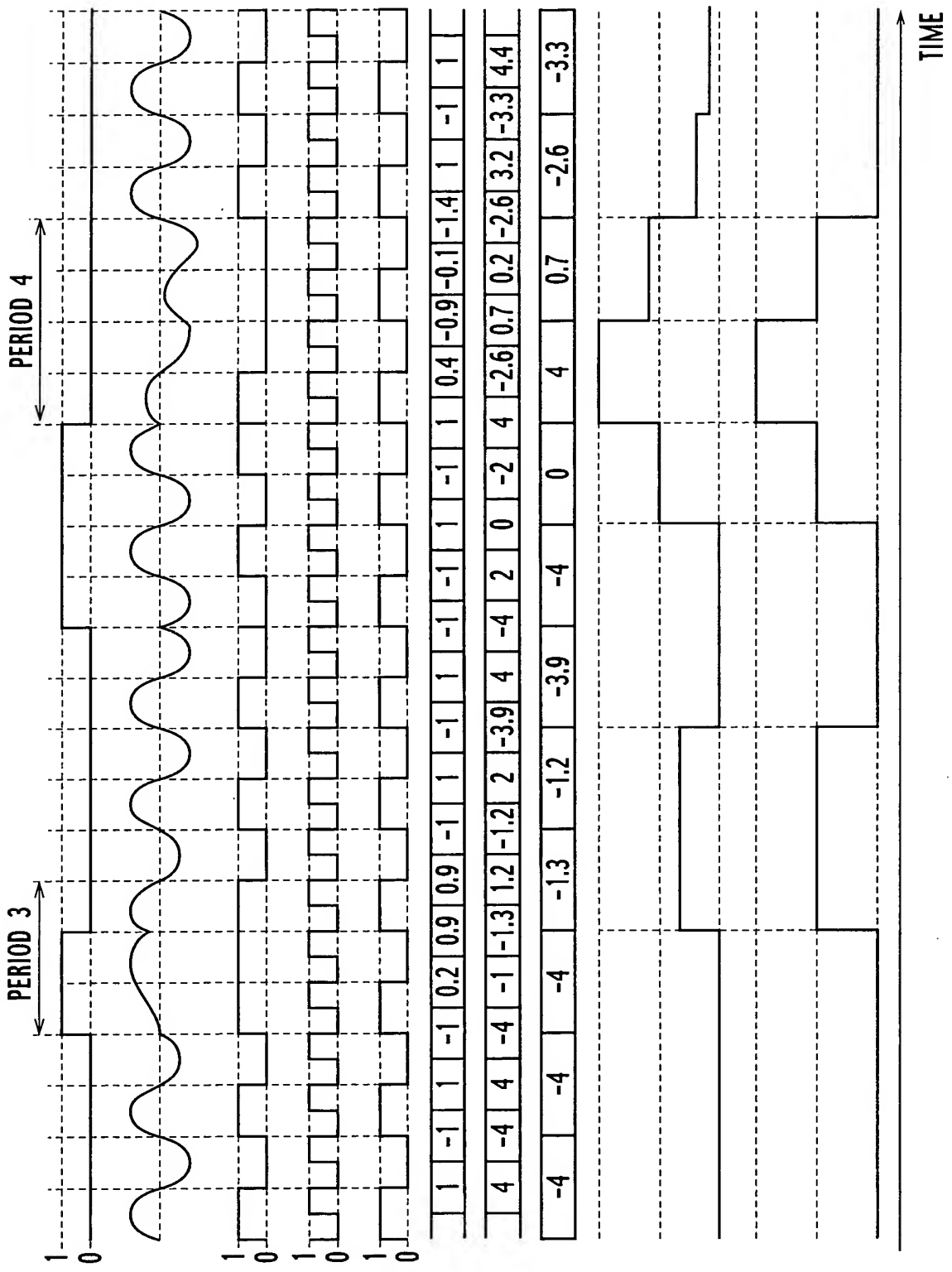


FIG. 23A ADS
FIG. 23B WS
FIG. 23C BWS
FIG. 23D CLK1
FIG. 23E CLK2
FIG. 23F AD
FIG. 23G CWS
FIG. 23H SS
FIG. 23I SS
FIG. 23J SS

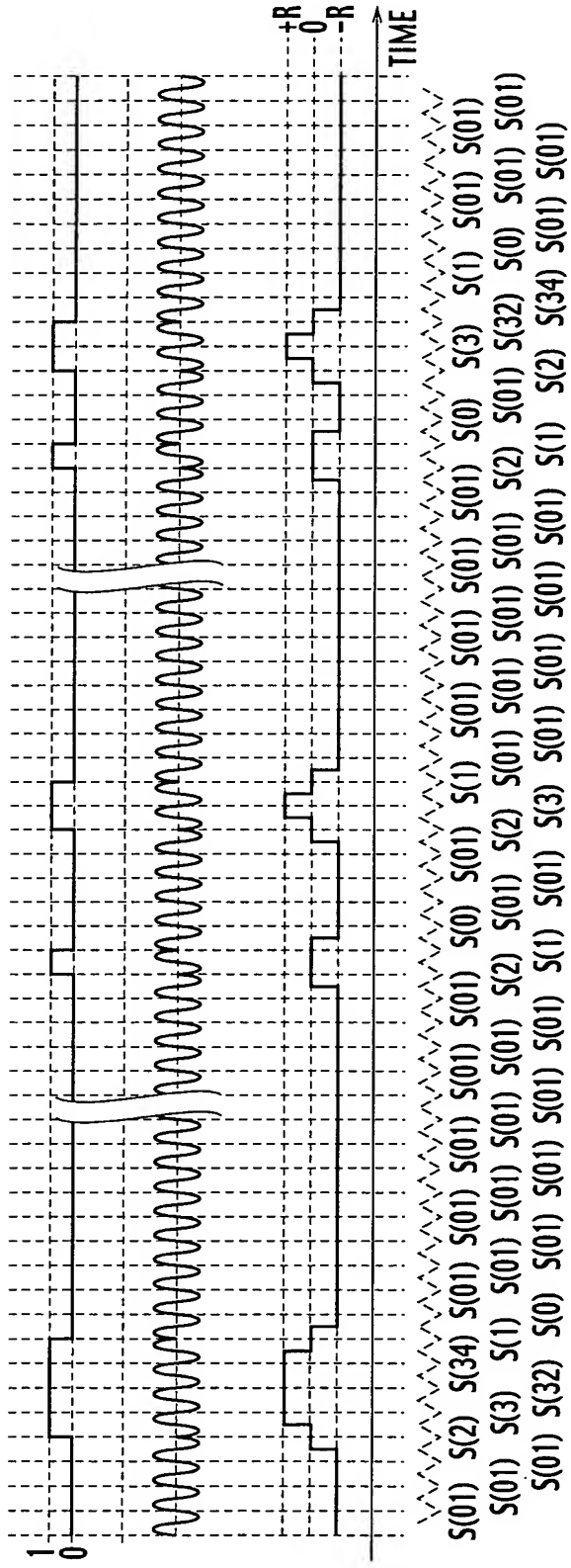


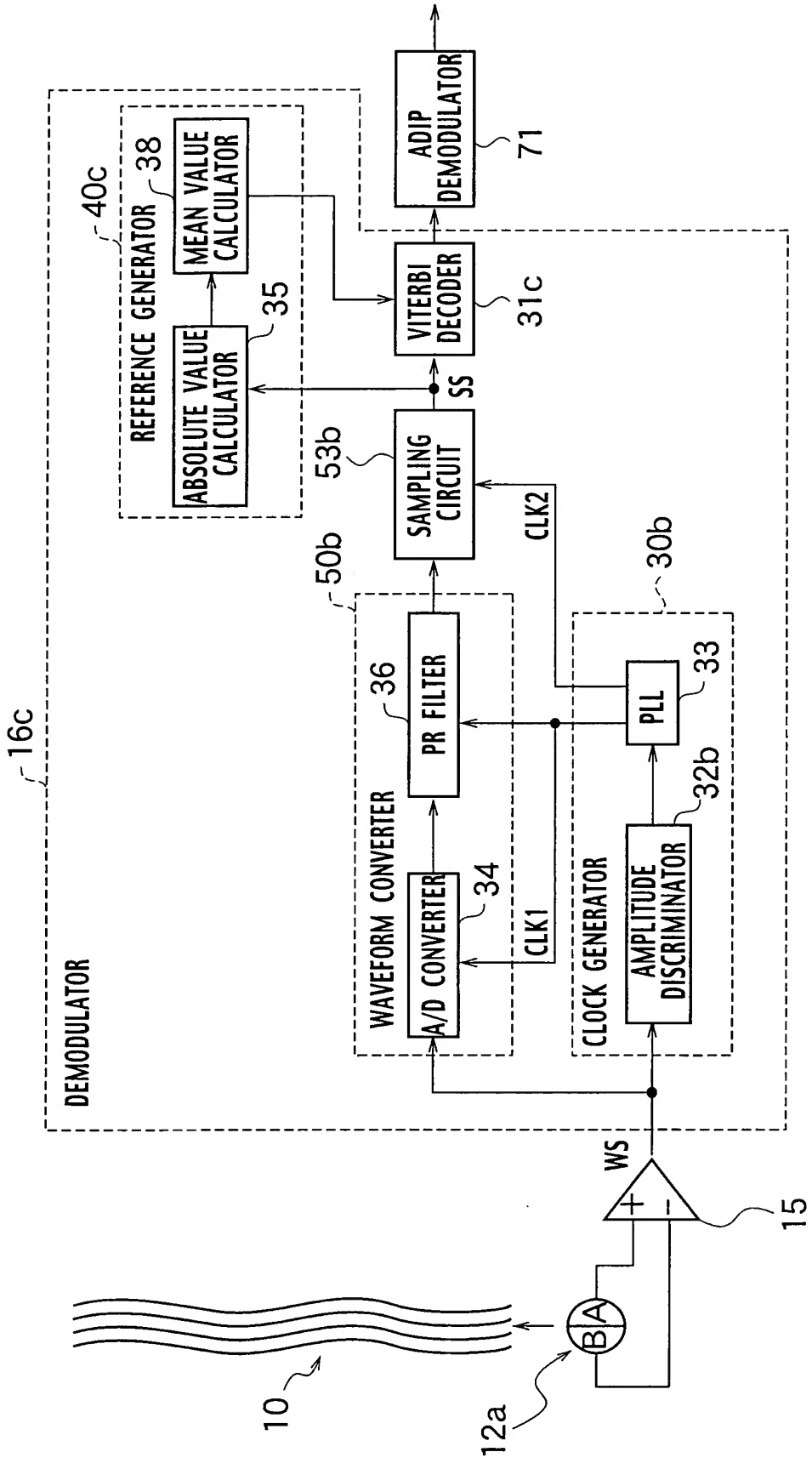
FIG. 24A ADS

FIG. 24B

FIG. 24C CWS

FIG. 24D STATE

FIG. 25


DEMODULATOR
16c
ADIP DEMODULATOR
71
VITERBI DECODER
31c
REFERENCE GENERATOR
40c
MEAN VALUE CALCULATOR
38
ABSOLUTE VALUE CALCULATOR
35
SS
SAMPLING CIRCUIT
53b
CLK2
50b
30b
WAVEFORM CONVERTER
PR FILTER
36
PLL
33
A/D CONVERTER
34
CLK1
CLOCK GENERATOR
AMPLITUDE DISCRIMINATOR
32b
WS
15
B
A
10
12a